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A NEW MEDITERRANEAN SPECIES OF THE GENUS *HOMALOPOMA*,
WITH NOTES ON THE GENUS-GROUP
(TROCHOIDEA, TURBINIDAE, COLLONIINAE)***

KEY WORDS: new species, morphology, SEM, protoconch, radula, Mediterranean Sea, *Homalopoma*, *Cantrainea*, *H. sanguineum*, *C. peloritana*.

Abstract

A new species of the turbinid genus *Homalopoma* is here described from Cyprus. It is compared with the well-known congeneric *H. sanguineum* (L., 1758) and with *Cantrainea peloritana* (Cantraine, 1835).

The main differences lie in the teleoconch features, while morphology of both protoconch and radula (with the possible exception of the laterals) seem to be highly conservative in this group. An insight on the morphometrics of the rachidian is needed to ascertain the degree of the (intra- vs. interspecific) variation in this feature. The value of teleoconch characters in generic separation of *Cantrainea* species is doubted.

Riassunto

Viene descritta una nuova specie del genere *Homalopoma* dalle coste di Cipro. Viene comparata con la congenera *H. sanguineum* (L., 1758) e con *Cantrainea peloritana* (Cantraine, 1835). Le principali differenze risiedono nella teleoconca, mentre sia protoconca che radula appaiono molto conservative in questo gruppo (con la possibile eccezione dei denti laterali). Si evidenzia la necessità di un approfondimento della morfometria radulare (con particolare riferimento al dente rachidiano) per valutarne l'utilità una volta accertato il livello di variabilità intra- ed interspecifico. Il valore dei caratteri teleoconchiali nella separazione del genere *Cantrainea* è messo in dubbio, in virtù delle caratteristiche di transizione della nuova specie.

Introduction

The turbinid subfamily Colloniinae Cossmann, 1916 has been recently redefined by HICKMANN & McLEAN (1990), including therein also living species. The Colloniinae, among the most advanced Turbinidae, display many primitive characteristics and the longest fossil history (but see SZABÒ *et al.*, 1993 and MONARI *et al.*, 1994 for a separation of Colloniidae at family level, with Homalopomatinae retained in Turbinidae). In the Mediterranean fauna only two species are hitherto reported (SABELLI *et al.*, 1990-1992) belonging to two genera. *Homalopoma sanguineum* (Linné, 1758) is a common

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and well known species, usually living in dark and semi-dark environment. Its sciaphily results often in living also in caves. Depth range is from few meters to about 100 meters. *Cantrainea peloritana* (Cantraine, 1835) is a deep water species that has been recently reported (BABBÌ, 1982) as living in the Mediterranean Sea, probably associated to the bathyal white corals community. According to fossil materials (see also SMRIGLIO et al., 1992, with references therein) it was relatively common (and larger in size) during cooler times. The two genera are splitted on the basis of external morphology of the shell and the animal.

Specimens belonging to a third unknown species have been sorted out from samples collected off the Island of Cyprus. This species was already reported as *Homalopoma* sp.? and probably as *Homalopoma carinatum* by TORNARITIS (1987: fig. 38 p. 40 and p. 41 respectively). The possibility that it represents an additional lessepsian migrant, originating in the Red Sea, has been considered. We have been unable to find this species in the literature and within the large collections of Red Sea molluscs we have examined, therefore we assume that it is an undescribed Mediterranean one.

Systematics

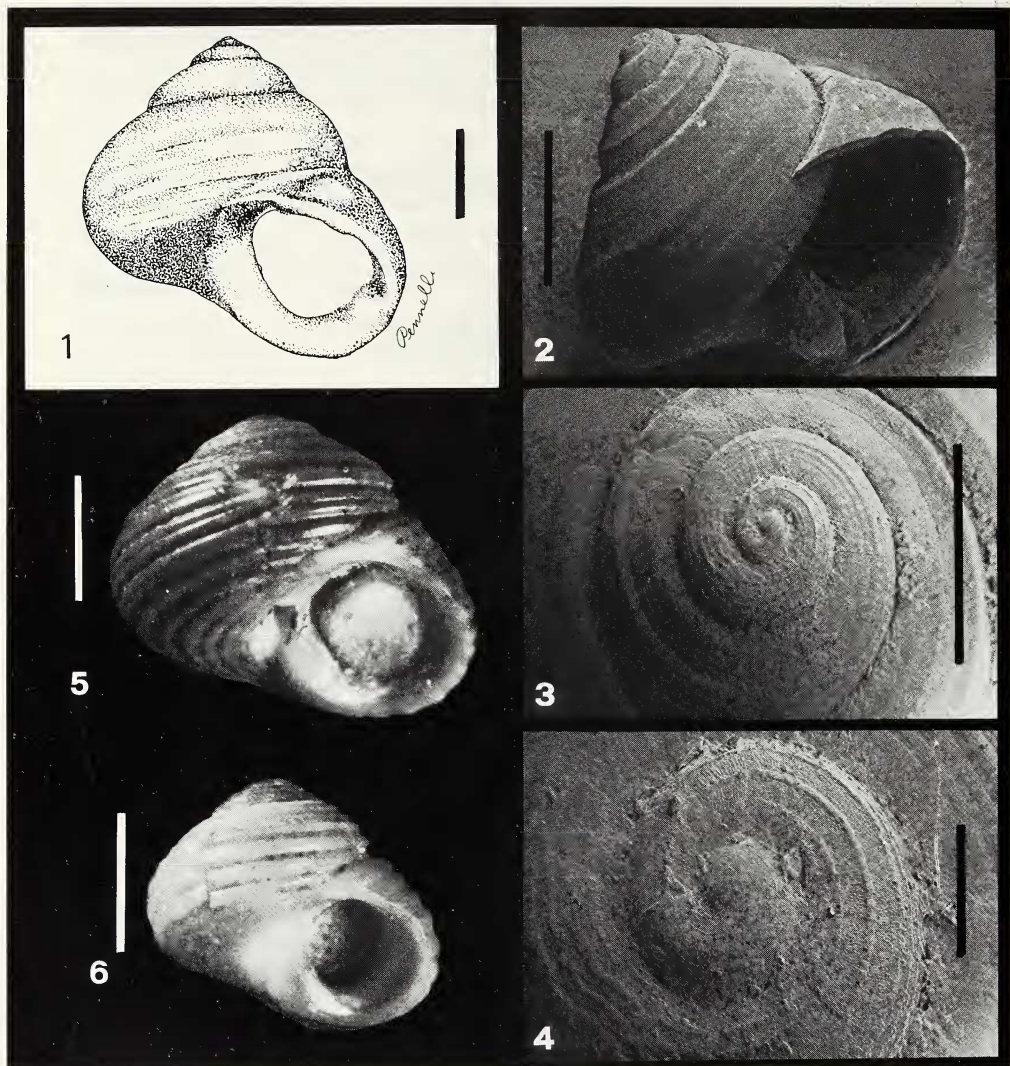
Order VETIGASTROPODA
Superfamily Trochoidea
Family Turbinidae
subfamily Colloniinae

Homalopoma carmelae n. sp.

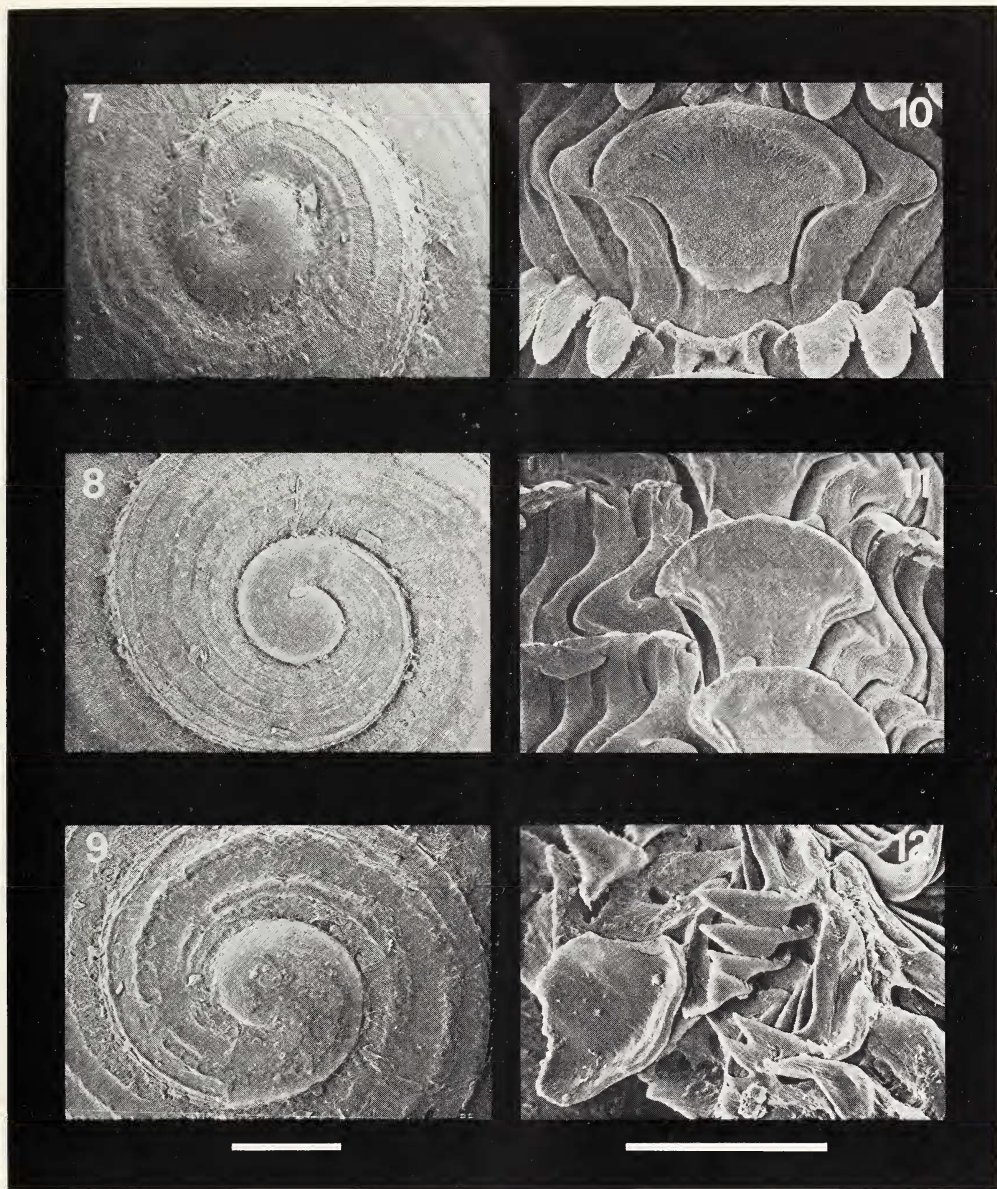
DESCRIPTION - Shell small, of 6-8 mm height and 7-9 mm width, thick and sturdy, dark red in colour. Protoconch of 0.5 whorls, with a nucleus 110 μm width, and a maximum diameter of 230 μm (Figs. 6, 7). The sculpture of the embryonic shell consists of sparse granules and two parallel spiral cordlets. Teleoconch of 4-5 convex whorls. The sculpture on the first 1.5-1.8 whorls consists of 6-7 spiral ribs, that disappear on the remaining of the shell (Fig. 5). Two keels are present on the upper third and at the base, and the suture is slightly canaliculated. Incised lines can be seen on the body-whorl. Aperture with circular generating curve, and peristome uninterrupted. Columella without denticles. Interior with a well-evident nacre.

The radula is typically rhipidoglossate, nearly symmetrical, with formula N-5-1-5-N. The rachidian (Fig. 10) is enlarged distally, without cusps and a maximum width of about 65 μm (in adult specimens). There is an evident secondary flap on the rachidian. The lateral teeth (Fig. 13), all equally developed, bear several cusps on their outer distal margin and are serrated on the inner side. The interlock system is well developed. The marginal teeth (Fig. 16) are well cusped and bear the characteristic food groove beneath the cusps, with a smooth lining (no secondary cusps). The operculum is multispiral. It can be retracted moderately. No observation on the live animal.

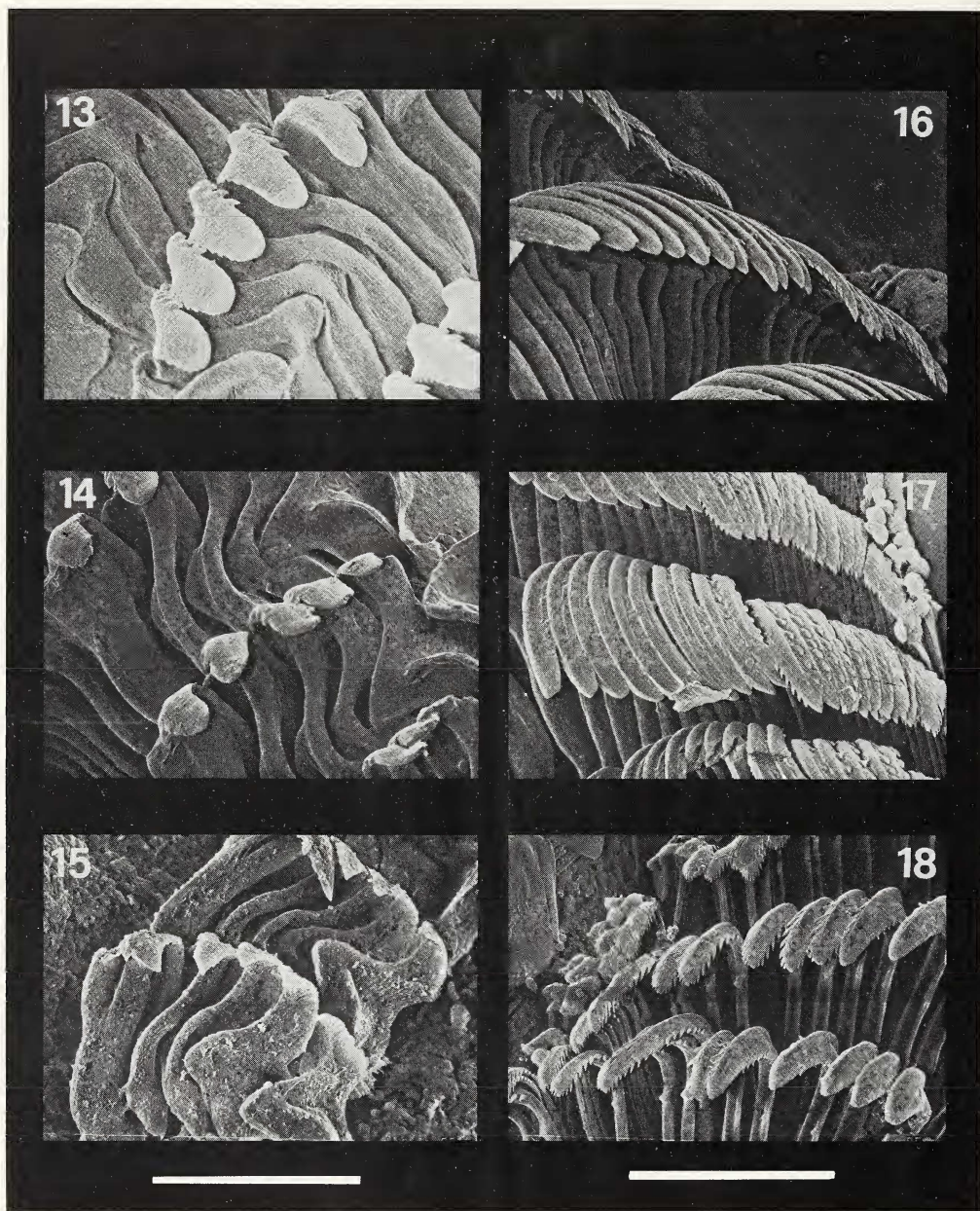
The name is after the second author's wife (Carmela) for her patience and assistance during malacological researches.



Figures 1-6 Shells of *Homalopoma*. 1-4 *H. carmelae* n. sp. - 1. Holotype (Scale bar = 2 mm). 2 - Paratype, type locality (Scale bar = 2 mm). 3. Paratype, type loc. (Scale bar = 1 mm). 4. Paratype, type loc. (Scale bar = 200 μ m). 5. *H. sanguineum*, Circeo, Italy (Scale bar = 2 mm). 6. *H. sanguineum* white form, Datcha, Turkey (Scale bar = 2 mm).



Figures 7-12 Protoconchs and rachidians of Colloniinae. 7. *H. carmelae* n. sp., same of fig. 4. 8. *H. sanguineum*, Cape Palinuro, Italy, -6 m (cave). 9. *C. peloritana*, off Sardinia, Italy, -550 m (Scale bar for column 7-9 = 200 μ m). 10. *H. carmelae* n. sp., type loc. 11. *H. sanguineum*, Datcha, Turkey. 12. *C. peloritana*, off Sardinia, Italy, -550 m (Scale bar for column 10-12 = 50 μ m).



Figures 13-18 Laterals and marginals of Colloniinae. 13, 16. *H. carmelae* n. sp., type loc. 14, 17. *H. sanguineum*, Datcha, Turkey. 15, 18. *C. peloritana*, off Sardinia, Italy, -550 m (Scale bars for columns = 50 μ m).

TYPE MATERIAL AND LOCALITY - A total of about 20 specimens have been examined. Some of them have been crushed to dissect the radula. The holotype has been deposited in the Civico Museo di Zoologia of Roma. It has been found sorting out residuals of fishing nets recovered from 80/100 m depth, off Omidia (Is. Cyprus): the latter area is designated as type locality. Other paratypes (all from type locality) are in the following collections:

Museum National d'Histoire Naturelle, Paris (1 specimen); Naturhistoriska Riksmuseet, Stockholm (1 adult specimen, and 1 juvenile specimen); Australian Museum, Sydney (1 specimen); Dip. Biologia Animale e dell'Uomo, «La Sapienza» University of Rome (2 specimens); private collection of Mr. G. Georgiou, Cyprus (2 specimens); private collection of Mr. Zambakides, Cyprus (2 specimens); private collection of Dr. L. Tringali, Rome (3 specimens); private collection of Mr. G. Buzzurro, Monza (7 specimens and 2 shells); private collection of Mr. R. Villa, Rome (2 specimens).

REMARKS - More than 50% of the specimens examined were heavily encrusted by the epizoic bryozoan *Hippopodinella* sp. The new species has strong similarities with *H. sanguineum* (L., 1758), a well-known species also present in the same area. It differs in several teleoconch features. *H. carmelae* is larger in size, lacks the spiral cords on the entire shell, and bears two keels on the body whorl (Figs. 1-4). The protoconchs have nearly the same size (Figs. 7, 8). The rachidian tooth seems to be slightly larger in *carmelae* than in *sanguineum* (Figs. 10, 11), but a larger sample size is needed to give statistical support to this observation. *H. sanguineum* is rather constant in shell morphology over its geographical range. There is only a high degree of variation in the teleoconch colour, varying from red to white. Pink-whitish to completely white specimens are usually found in dark environments. This is probably due to the unavailability in such environments (like caves) of the pigments used by the molluscs while building their shells. Noteworthy in some areas (e.g. along the southern Turkish coasts: M.O. and R. Villa pers. obs.) some populations of *H. sanguineum* consist entirely of white specimens (Fig. 6).

C. peloritana (Cantraine, 1835) differs from *H. carmelae* in the different habitat, the colour of the shell (always white or whitish in *peloritana*), in the larger protoconch (Fig. 9), and in the different shape of the lateral tooth of the radula: distally smooth and rounded in *H. carmelae* (and in *H. sanguineum*), narrow and totally serrated in *C. peloritana*. According to HICKMAN & McLEAN (1990) morphometrics of the central teeth should furnish interesting information especially at the specific level: the scarce number of specimens available hampers, at present, its use with reliable statistics in the present case.

Notes on the genus-group

Teleoconch outline of *H. carmelae* recalls in some way that of the species of the (closely allied) genus *Cantrainea*: lack of strong spiral ribs, less convex whorls (with respect to e.g. *H. sanguineum*), keeled whorls, etc. *Cantrainea* species are all from deep waters, and *C. peloritana* is no exception at this regard. According to HICKMAN & McLEAN (1990) *Homalopoma* and *Cantrainea* are separated basing on teleoconch and external head-foot morphology. Lack of data on live specimens of *H. carmelae* hampers a discussion of the value of external morphology characters in generic assignment. For what concerns teleoconch features, the transitional ones of *H. carmelae* should be taken into consideration. On the other side, the difference in the shape of the marginal tooth between *C. peloritana* and the *Homalopoma* species, suggest to investigate more widely this feature in *Cantrainea*. The radula is very conservative in this group, and in the present case seems to show no relevant variation within *Homalopoma*. Basing on the available data on radular morphology and on the habitat, we are confident of the placement of the new species in *Homalopoma*, that we maintain separated from *Cantrainea*. The actual value of the teleoconch characters in separating the two genera seems weakend, while external head-foot and radular morphology should be investigated comparatively.

Acknowledgements

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